

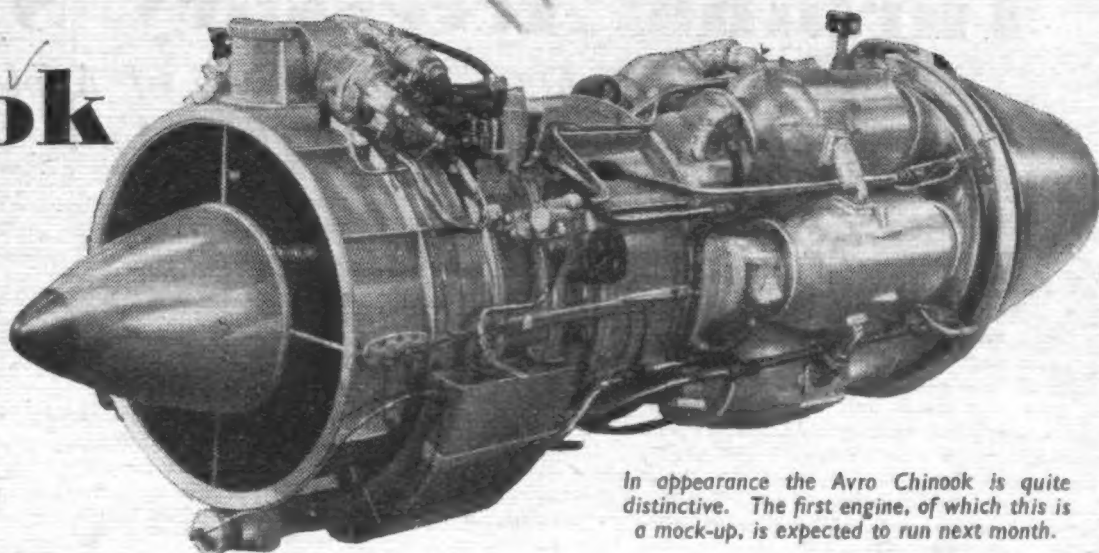
# The Chinook

Jet Developments

in Canada :

First Avro

Gas Turbine



In appearance the Avro Chinook is quite distinctive. The first engine, of which this is a mock-up, is expected to run next month.

UNOBTRUSIVELY, the work of testing, then designing, and more recently producing aircraft gas turbines has been going on in the Dominion of Canada. It may be a surprise to many people here to learn that as long ago as late 1943 a Cold-weather Test Station for British turbo jets was built at Stevenson Field, Winnipeg, Manitoba. The history of developments which led up to the production of Canada's first gas turbine, named the Chinook\*, is as follows:—

When news was first received from England of a new kind of aircraft propulsion unit, and in keeping with Canada's current policy of expanding her wartime aircraft industry to help in every way the much-bombed manufacturers in this country, a fact-finding technical mission was sent to the United Kingdom to study these new power units and to submit findings and recommendations to Ottawa. The report was completed in June, 1943, and it indicated that at that time one of the greatest problems was the testing of jet engines under low-temperature conditions, such as would be encountered at the high operational altitudes foreseen for them. It was virtually impossible to provide equipment to produce artificially refrigerated air in sufficient quantities to satisfy the huge consumption of even the smaller jet engines, but a quick and logical solution seemed to be to make use of the abundance of cold air supplied by nature during Canadian winters. As a result of this conclusion, and with the support of the British Government, the Winnipeg Cold-weather Station was set up.

## British-Trained Technicians

While buildings were being erected, Canadian engineers and fitters were sent to Great Britain for training in testing and servicing of jet engines, and test operations were begun during the winter of 1943-44, under the supervision of the Canadian National Research Council.

The Canadian Government was naturally desirous of entering the field of aircraft power-plant manufacture in order that the country, which had previously imported all engines, might emerge from the war with an independent aircraft industry. The next phase of Canadian development was the setting-up of a Crown company, known as Turbo Research, Ltd., in August of 1944. This new company, with headquarters near Toronto, took over National Research Council activities and continued to operate the Cold-weather Test Station. It also supervised a scheme for recruiting and training staff to permit an expansion of engine design and development activities. More engineers and tradesmen were sent to this country for training, and also officers and N.C.O.s of the R.C.A.F.

With the cessation of hostilities the Canadian Government, in keeping with a policy of disposing of Crown companies, decided to discontinue the operation of Turbo

Research, Ltd., and A. V. Roe (Canada), Ltd., who had already prepared designs in jet aircraft, took over the facilities of the company and transferred the headquarters and staff to Malton. The National Research Council continued to undertake much of the basic research work. The manager and chief engineer of Avro's gas turbine division is Paul B. Dilworth and the chief designer Winnet Boyd.

The gas turbine division of A. V. Roe (Canada) now employs some 450 men in its three departments, the manufacturing division and the laboratories at Malton, and the test plant at Nobel, Ontario. The Nobel plant, formerly used for the manufacture of explosives, has amongst its equipment a 6,000 h.p. steam turbine for compressor testing, and five large reciprocating air compressors for combustion and aerodynamic tests. A comparatively small amount of modification has made this equipment suitable for the development of gas turbine compressors, turbines and combustion chambers.

Turbo Research, Ltd., started the design of the Chinook, the development engine illustrated in mock-up form in *Flight* last week, and the design work was completed at the Avro Canada plant at Malton. The information it is expected to provide will be used for more powerful units already on the design boards or in the component manufacturing stage. The maximum design power is 2,590 lb thrust at 10,100 r.p.m. (two min), and the unit has a nine-stage axial flow compressor, six combustion chambers and a single-stage turbine. Dimensions are:—

Maximum diameter .....	32in
Maximum radius over auxiliaries ....	17½in
Overall length .....	125in
Total weight .....	1,250 lb

It is hoped that the first test run will be made some time in February.

A. V. Roe (Canada), Ltd., are at present developing a jet-powered 30/40-passenger transport which is to cruise at about 400 m.p.h. It is known as the C-102 and has four Rolls-Royce Derwent Vs. The first flight is scheduled for about this time next year.

## MILES AIRCRAFT PETITION

LAST Monday Mr. Justice Vaisey adjourned for a further four weeks the petition for the compulsory winding-up of Miles Aircraft, Ltd. The petition was presented by Titanine, Ltd., creditors for £5,837, whose representative said this company was supported by creditors for £60,000.

Creditors for £234,000 opposed the petition. For Miles Aircraft it was stated that the assets of the company were of a book value of £2½ million, while the creditors were something over £1 million. Mr. Hogg, the appointed manager of the company, had prepared the heads of a scheme, and negotiations were in progress with certain large creditors. A joint committee had approved the scheme in principle. The receiver and manager would be acting in the interests of the creditors. In allowing the petition to stand over for four weeks, Mr. Justice Vaisey said the petitioners must be informed of the progress of the negotiations.

\* Chinook is the name of a wind which blows, usually from the west, over the Rocky Mountains. It is perhaps best known as a warm winter wind, but also blows as a cool wind in summer. (Like an Indian tribe.)